Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

Claim 1 (currently amended): An electroconductive ink comprising:
substantially cylindrical carbon fibrils having one or more graphitic layers concentric with their cylindrical axes, said carbon fibrils being substantially free of pyrolytically deposited carbon overcoat, said carbon fibrils having a substantially uniform diameter between 0.4 nm and 100 nm, said fibrils ~~and~~ having a length to diameter ratio greater than 5; and a liquid vehicle;
wherein said electroconductive ink has a viscosity ranging from 1 to 50,000 cps.

Claim 2 (original): The electroconductive ink of claim 1, further comprising a polymeric binder.

Claim 3 (currently amended): The electroconductive ink of claim 1 ~~or 2~~, wherein the fibrils are oxidized.

Claim 4 (currently amended): The electroconductive ink of claim 2, wherein said polymeric binder is selected from the group consisting of vinyl chloride, vinyl acetate, hydroxyalkyl acrylate, vinyl alcohol, ~~VAGH, VAGF, XP 9901~~, cellulose acetate butyrate, hydroxylethyl cellulose, carboxylmethyl cellulose, ~~and~~ acrylic-based polymers, and combinations thereof.

Claim 5 (currently amended): The electroconductive ink of claim 1, ~~2, 3 or 4,~~ wherein said liquid vehicle is a nonhydrocarbon polar organic solvent.

Claim 6 (currently amended): The electroconductive ink of claim 1, ~~2, 3 or 4,~~ wherein said liquid vehicle is selected from the group consisting of carbitol, carbitol acetate, butyl carbitol, butyl carbitol acetate, butyrolactone, acetone, methyl ethyl ketone, cyclohexanone, dibasic ester solvent, diglyme, high boiling alcohols, ~~and~~ alcohol esters and combinations thereof.

Claim 7 (original): The electroconductive ink of claim 5, wherein said organic solvent has a boiling point from about 150°C to 200°C.

Claim 8 (currently amended): The electroconductive ink of claim 1, ~~2, or 3,~~ wherein said liquid vehicle is water.

Claim 9 (currently amended): The electroconductive ink of ~~any one of claims 1-8~~ claim 1, wherein the carbon fibrils are present in the range of from about 1 to about 5 percent by weight of the electroconductive ink.

Claim 10 (currently amended): The electroconductive ink of ~~any one of claims 1-8~~ claim 9, wherein said carbon fibrils are present in the range of from about 1.5 to about 2.5 percent by weight of the electroconductive ink.

Claim 11 (original): The electroconductive ink of claim 2, wherein said polymeric binder is present in the range of from about 0.5 to about 10 percent by weight of the electroconductive ink.

Claim 12 (original): The electroconductive ink of claim 2, wherein said polymeric binder is present in the range of from about 3 to about 6 percent by weight of the electroconductive ink.

Claim 13 (original): The electroconductive ink of claim 1, wherein the carbon fibrils are 3.5 to 70 nm in diameter.

Claim 14 (original): The electroconductive ink of claim 1, wherein the carbon fibrils have a fishbone morphology.

Claim 15 (original): The electroconductive ink of claim 1, further comprising a surfactant.

Claim 16 (original): The electroconductive ink of claim 1, wherein said carbon fibrils are in the form of aggregates.

Claim 17 (original): The electroconductive ink of claim 16, wherein said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof.

Claim 18 (original): The electroconductive ink of claim 1, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 19 (original): The electroconductive ink of claim 1, further comprising a carbon material selected from the group consisting of carbon black, graphite or mixtures thereof.

Claim 20 (original): The electroconductive ink of claim 1, wherein the electroconductive ink has a degree of thixotropy ranging from 1.0 to 1.5.

Claim 21 (currently amended): A method for making an electroconductive ink comprising ~~the steps of~~: adding carbon fibrils to a liquid vehicle to form a solution, said carbon fibrils being substantially cylindrical, having one or more graphitic layers concentric with their cylindrical axes, being substantially free of pyrolytically deposited carbon overcoat, said carbon fibrils having a substantially uniform diameter between 0.4 nm and 100 nm, said fibrils ~~and~~ having a length to diameter ratio greater than 5; ~~dispersing said carbon fibrils in said solution;~~ milling said carbon fibrils in said solution; and filtering said solution to form said electroconductive ink.

Claim 22 (original): The method of claim 21, further comprising the step of mixing a polymeric binder with the liquid vehicle before adding said carbon fibrils.

Claim 23 (currently amended): The method of claim ~~21~~ 76, wherein said dispersing step is performed by sonication.

Claim 24 (original): The method of claim 21, wherein said milling step is performed by a three roll mill.

Claim 25 (original): The method of claim 21 wherein said filtering step is performed with a screen.

Claim 26 (currently amended): The method of claim ~~21~~ 22, wherein said polymeric binder is selected from the group consisting of ~~VAGH, VAGF~~ vinyl chloride, vinyl acetate, hydroxyalkyl acrylate, vinyl alcohol, cellulose acetate butyrate, hydroxylethyl cellulose, carboxylmethyl cellulose, ~~and~~ acrylic-based polymers, and combinations thereof.

Claim 27 (original): The method of claim 21, wherein said liquid vehicle is a nonhydrocarbon polar organic solvent.

Claim 28 (original): The method of claim 21, wherein said liquid vehicle is selected from the group consisting of carbitol, carbitol acetate, butyl carbitol, butyl carbitol acetate, butyrolactone, acetone, methyl ethyl ketone, cyclohexanone, dibasic ester solvent, diglyme, high boiling alcohols, alcohol esters, and water.

Claim 29 (currently amended): The method of claim ~~21~~ 28, wherein the liquid vehicle is water.

Claim 30 (original): The method of claim 21, wherein said liquid vehicle has a boiling point from about 150°C to 200°C.

Claim 31 (original): The method of claim 21, wherein the carbon fibrils are 3.5 to 70 nm in diameter with c-axes substantially perpendicular to the fibril axis.

Claim 32 (original): The method of claim 21, wherein the carbon fibrils have a fishbone morphology.

Claim 33 (original): The method of claim 21, wherein said carbon fibrils are in the form of aggregates.

Claim 34 (original): The method of claim 33, where said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof.

Claim 35 (original): The method of claim 21, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 36 (currently amended): An electroconductive coating comprising:
substantially cylindrical carbon fibrils having one or more graphitic layers concentric with their cylindrical axes, said carbon fibrils being substantially free of pyrolytically deposited carbon overcoat, said carbon fibrils having a substantially uniform diameter between 0.4 nm and 100 nm, said fibrils ~~and~~ having a length to diameter ratio greater than 5, wherein said coating has a ~~conductivity~~ resistivity of 0.001 to 0.25 ohm cm.

Claim 37 (original): The electroconductive coating of claim 36, further comprising a polymeric binder.

Claim 38 (currently amended): The electroconductive coating of claim ~~36~~ 37, wherein the polymeric binder is selected from the group consisting of vinyl chloride, vinyl acetate, hydroxyalkyl acrylate, vinyl alcohol ~~VAGH, VAGF, XP 990-1~~, cellulose acetate butyrate, hydroxylethyl cellulose, carboxylmethyl cellulose, ~~and~~ acrylic-based polymers, and combinations thereof.

Claim 39 (original): The electroconductive coating of claim 36, wherein said carbon fibrils are in the form of aggregates.

Claim 40 (original): The electroconductive coating of claim 39, where said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy

aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof.

Claim 41 (original): The electroconductive coating of claim 36, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 42 (original): The electroconductive coating of claim 36, wherein said coating has a thickness of 0.1 to 0.5 mil.

Claim 43 (currently amended): An electroconductive coating made using the conductive ink of ~~any one of claims 1-20~~ claim 1.

Claim 44 (currently amended): An electroconductive coating made using a conductive ink made according to the method of ~~any one of claims 21-35~~ claim 21..

Claim 45 (currently amended): A method of preparing an electroconductive coating using the electroconductive ink of ~~any of claims 1-20~~ claim 1 comprising screen printing said ink to form said coating.

Claim 46 (original): A method according to claim 45, wherein the viscosity of the ink is between 1000 and 50,000 cps.

Claim 47 (currently amended): A method of preparing an electroconductive coating using the electroconductive ink of ~~any one of claims 1-20~~ claim 1 comprising ink jet printing said ink to form said coating.

Claim 48 (original): A method according to claim 47, wherein the fibrils are oxidized.

Claim 49 (currently amended): A method according to claim ~~46~~ 47, wherein the viscosity of the ink is between 1 and 3 cps.

Claim 50 (currently amended): A method of preparing an electroconductive coating using the electroconductive ink of ~~any one of claims 1-20~~ claim 1 comprising spraying the ink through a mask to form said coating.

Claim 51 (original): A method according to claim 50, wherein the viscosity of the ink is between 1 and 5 cps.

Claim 52 (currently amended): A field emission cathode comprising a coating made according to the method of ~~any one of claims 36 to 51~~ claim 45.

Claim 53 (currently amended): A field emission cathode operating at between 0.1 and 2.0 v/μm, having a patterned cathode with features smaller than 1 mm, prepared using the electroconductive ink ~~inks~~ according to ~~any one of claims 1-20~~ claim 1.

Claim 54 (original): A cathode of claim 53, wherein the carbon fibrils are 3.5 to 70 nm in diameter with c-axes substantially perpendicular to the fibril axis.

Claim 55 (currently amended): A display device comprising the cathode of ~~any one of claims~~ claim 52 ~~to 53~~.

Claim 56 (currently amended): A supercapacitor comprising ~~one or more~~ a printed ~~electrodes~~ electrode comprising an electroconductive coating made according to the method of ~~any one of claims 36 to 51~~ claim 45.

Claim 57 (currently amended): A printed resistor comprising ~~a~~ an electroconductive coating made according to the method of ~~any one of claims 36 to 51~~ claim 45.

Claim 58 (new): The electroconductive ink of claim 4, wherein said polymeric binder is a terpolymer of vinyl chloride, vinyl acetate and hydroxyalkyl acetate.

Claim 59 (new): The electroconductive ink of claim 4, wherein said polymeric binder is a terpolymer of vinyl chloride, vinyl acetate and vinyl alcohol.

Claim 60 (new): The electroconductive ink of claim 4, wherein said polymeric binder is cellulose acetate butyrate.

Claim 61 (new): The electroconductive ink of claim 2, wherein said liquid vehicle is a nonhydrocarbon polar organic solvent.

Claim 62 (new): The electroconductive ink of claim 2, wherein said liquid vehicle is selected from the group consisting of carbitol, carbitol acetate, butyl carbitol, butyl carbitol acetate, butyrolactone, acetone, methyl ethyl ketone, cyclohexanone, dibasic ester solvent, diglyme, high boiling alcohols, alcohol esters and combinations thereof.

Claim 63 (new): The electroconductive ink of claim 61, wherein said organic solvent has a boiling point from about 150°C to 200°C.

Claim 64 (new): The electroconductive ink of claim 2, wherein said liquid vehicle is water.

Claim 65 (new): The electroconductive ink of claim 2, wherein the carbon fibrils are present in the range of from about 1 to about 5 percent by weight of the electroconductive ink.

Claim 66 (new): The electroconductive ink of claim 65, wherein said carbon fibrils are present in the range of from about 1.5 to about 2.5 percent by weight of the electroconductive ink.

Claim 67 (new): The electroconductive ink of claim 2, wherein the fibrils are oxidized.

Claim 68 (new): The electroconductive ink of claim 2, wherein the carbon fibrils are 3.5 to 70 nm in diameter.

Claim 69 (new): The electroconductive ink of claim 2, wherein the carbon fibrils have a fishbone morphology.

Claim 70 (new): The electroconductive ink of claim 2, further comprising a surfactant.

Claim 71 (new): The electroconductive ink of claim 2, wherein said carbon fibrils are in the form of aggregates.

Claim 72 (new): The electroconductive ink of claim 71, wherein said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof.

Claim 73 (new): The electroconductive ink of claim 2, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 74 (new): The electroconductive ink of claim 2, further comprising a carbon material selected from the group consisting of carbon black, graphite or mixtures thereof.

Claim 75 (new): The electroconductive ink of claim 2, wherein the electroconductive ink has a degree of thixotropy ranging from 1.0 to 1.5.

Claim 76 (new): The method of claim 21 further comprising: dispersing said carbon fibrils in said solution following the step of adding said carbon fibrils.

Claim 77 (new): The method of claim 22 further comprising: dispersing said carbon fibrils in said solution following the step of adding said carbon fibrils.

Claim 78 (new): The method of claim 77, wherein said dispersing step is performed by sonication.

Claim 79 (new): The method of claim 22, wherein said milling step is performed by a three roll mill.

Claim 80 (new): The method of claim 22 wherein said filtering step is performed with a screen.

Claim 81 (new): The method of claim 22, wherein said liquid vehicle is a nonhydrocarbon polar organic solvent.

Claim 82 (new): The method of claim 22, wherein said liquid vehicle is selected from the group consisting of carbitol, carbitol acetate, butyl carbitol, butyl carbitol acetate,

butyrolactone, acetone, methyl ethyl ketone, cyclohexanone, dibasic ester solvent, diglyme, high boiling alcohols, alcohol esters, and water.

Claim 83 (new): The method of claim 82, wherein the liquid vehicle is water.

Claim 84 (new): The method of claim 22, wherein said liquid vehicle has a boiling point from about 150°C to 200°C.

Claim 85 (new): The method of claim 22, wherein the carbon fibrils are 3.5 to 70 nm in diameter with c-axes substantially perpendicular to the fibril axis.

Claim 86 (new): The method of claim 22, wherein the carbon fibrils have a fishbone morphology.

Claim 87 (new): The method of claim 22, wherein said carbon fibrils are in the form of aggregates.

Claim 88 (new): The method of claim 87, where said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof,.

Claim 89 (new): The method of claim 22, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 90 (new): The electroconductive coating of claim 36, wherein the coating has a resistivity of 0.05 to 0.09 ohm cm.

Claim 91 (new): The electroconductive coating of claim 37, wherein said carbon fibrils are in the form of aggregates.

Claim 92 (new): The electroconductive coating of claim 91, where said aggregates are selected from the group consisting of combed yarn aggregates, cotton candy aggregates, bird nest aggregates, open net aggregates, single wall ropes and mixtures thereof.

Claim 93 (new): The electroconductive coating of claim 37, wherein said carbon fibrils are oxidized multiwall carbon fibrils.

Claim 94 (new): The electroconductive coating of claim 37, wherein said coating has a thickness of 0.1 to 0.5 mil.

Claim 95 (new): An electroconductive coating made using the conductive ink of claim 2.

Claim 96 (new): An electroconductive coating made using the conductive ink of claim 16.

Claim 97 (new): An electroconductive coating made using a conductive ink made according to the method of claim 22.

Claim 98 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 2 comprising screen printing said ink to form said coating.

Claim 99 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 16 comprising screen printing said ink to form said coating.

Claim 100 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 2 comprising ink jet printing said ink to form said coating.

Claim 101 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 16 comprising ink jet printing said ink to form said coating.

Claim 102 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 2 comprising spraying the ink through a mask to form said coating.

Claim 103 (new): A method of preparing an electroconductive coating using the electroconductive ink of claim 16 comprising spraying the ink through a mask to form said coating.

Claim 104 (new): A field emission cathode comprising a coating made according to the method of claim 47.

Claim 105 (new): A field emission cathode comprising a coating made according to the method of claim 50.

Claim 106 (new): A field emission cathode operating at between 0.1 and 2.0 v/μm, having a patterned cathode with features smaller than 1 mm, prepared using the electroconductive ink according to claim 2.

Claim 107 (new): A field emission cathode operating at between 0.1 and 2.0 v/μm, having a patterned cathode with features smaller than 1 mm, prepared using the electroconductive ink according to claim 16.

Claim 108 (new): A supercapacitor comprising a printed electrode comprising an electroconductive coating made according to the method of claim 47.

Claim 109 (new): A supercapacitor comprising a printed electrode comprising an electroconductive coating made according to the method of claim 50.

Claim 110 (new): A printed resistor comprising an electroconductive coating made according to the method of claim 47.

Claim 111 (new): A printed resistor comprising an electroconductive coating made according to the method of claim 50.